



Illinois Environmental Protection Agency · P.O. Box 19276, Springfield, IL 62794-9276

217/782-6761

CERTIFIED _____

Refer to: 0316500002 - Cook County
LTV Steel Company, Inc., Chicago Works
ILD056623598
Compliance File

April 28, 1988

Mr. R.A. Voytko
LTV Steel Company
Environmental Control
3100 East 45th Street
Cleveland, Ohio 44127

Dear Mr. Voytko:

The purpose of this letter is to address the status of apparent violations of 35 IL Adm. Code as identified in our Compliance Inquiry Letter of February 4, 1988.

Upon the Certification of Closure of your facility you are no longer required to comply with Subpart G and H of 35 IL Adm. Code. Therefore, the violations as stated in the C.I.L. are considered resolved.

Enclosed are your Financial Guarantee Bond #018575159, Trust Fund #14158-4, Bond Rider dated March 22, 1988 and Bond Rider dated February 24, 1986.

If you have any questions regarding the above matter, please contact Andrew Vollmer at the above number.

Very truly yours,

Harry A. Chappel
Harry A. Chappel, P.E., Manager / *EA*
Compliance Section
Division of Land Pollution Control

HAC:AV:dh/1

Enclosure

cc: Division File ✓
Maywood Region
Enforcement, Gary King
Brian White
USEPA

Brian White

LTV Steel Company

March 3, 1988



Angela Aye Tin, Manager
Technical Compliance Unit
Compliance Section
Illinois Environmental Protection Agency
Division of Land Pollution Control
2200 Churchill Road
Springfield, Illinois 62794-9276

Re: 0316500002 - Cook County
LTV Steel Company
Chicago Works
ILD 056623598
Closure Log C-118

Dear Ms. Tin:

This letter is in response to your Compliance Inquiry Letter (CIL) of February 4, 1988 regarding the EAF dust pile (S03) and drum storage facility (S01) at the subject facility. A closure plan for both units was submitted by LTV Steel on July 17, 1985 for review and approval by Illinois EPA. Approval of the plan (pending modifications) was indicated in agency letters of January 21, 1986 and February 6, 1986, as well as in LTV Steel's letter of February 4, 1986 to Illinois EPA. (Copies of correspondence are attached as reference.)

Certification of Closure for units S03 and S01 which incorporated modifications recommended by the agency was submitted for agency approval on July 17, 1986. Recertification of Closure for unit S01 was submitted as shown in the attachment of February 29, 1988.

It should be noted that LTV Steel has maintained financial assurance documents for this facility. The amount of the bond held since February, 1986 is \$662,103. LTV Steel requests that financial assurance documents be returned when the agency acknowledges a change in status of the facility.

Based upon removal of the (S03) pile and recent recertification of closure of the drum storage (S01) area these units are closed. As the apparent violations cited in the inquiry letter involve financial assurance/liability insurance issues regarding these facilities, LTV Steel respectfully requests that the agency review the applicability of these citations and consider withdrawal of same.

It remains the intent of LTV Steel to cooperate fully with Illinois EPA in this matter. Please contact me at 216/429-6539 should you have any questions.

R. A. Voytko

R. A. Voytko
Environmental Management Engineer
Environmental Control

RAV/fh
cc: Illinois EPA
Mr. Bob Carson
3763a

RECEIVED

MAR 7 1988

IEPA-DLPO



Log 118 Closure ✓ file
Illinois Environmental Protection Agency · 2200 Churchill Road, Springfield, IL 62706

217/782-6762

Refer to: 0316500002 -- Cook County
Chicago/LTV Steel
ILD056623598
Log #C-118

February 6, 1986

L.A. Szuhay
LTV Steel Company
Corporate Environmental Control Department
3100 East 45th Street
Cleveland, Ohio 44127

Dear Mr. Szuhay:

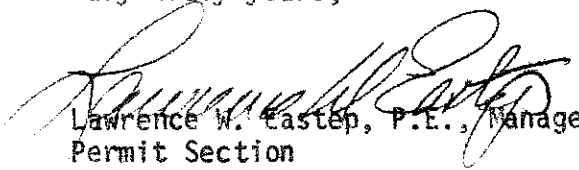
It has come to our attention that the due date for certification of closure for the above facility, as shown on our approval letter of January 21, 1986, is in error. Certification must be received at this Agency within 30 days after closure, or by July 20, 1986.

Our records have been revised accordingly.

Please attach this letter to our approval letter of January 21.

Should you have questions on this matter, please contact Bob Carson of my staff at 217/782-6762.

Very truly yours,


Lawrence W. Easter, P.E., Manager
Permit Section
Division of Land Pollution Control

rac
LWE:RAC:sf/288f,67
CAZ

cc: Maywood Region
Division File
Financial Assurance Unit
USEPA, Region V -- Ann Budich
Bob Carson



217/782-6762

Refer to: 0316500002 -- Cook County
Chicago/LTV Steel
ILD 056623598
Log # C-118

January 21, 1986

L. A. Szuhay
LTV Steel Company
Corporate Environmental Control Department
3100 East 45th Street
Cleveland, Ohio 44127

Dear Mr. Szuhay:

The closure plan prepared by Burgess & Niple, Ltd., submitted by W. L. West on July 17, 1985, received by the Agency on July 22, 1985, and modified by information dated November 21, 1985 and received by the Agency on November 23, 1985, to close the hazardous waste storage areas (S01 and S03) is hereby approved.

Under the terms of Title 35, Illinois Administrative Code (35 IAC) Subtitle G Section 725.212(d), the closure plan is hereby modified to include those items listed below. All other provisions of the submitted closure plan which have not been modified remain the same.

1. Plans are to be submitted with certification documents showing the location of subgrade (slag) samples and the grid system which was utilized. The grid interval used for this nonofill shall not exceed 60 feet.
2. Samples of the upper six inches of soil underlying the slag are to be taken at 8 locations in the four cardinal directions, approximately twenty feet outside of the waste pile areas. Four background samples of the soil are to be taken from locations beyond the influence of infiltration and runoff from the K061 dust pile.
3. All subgrade (slag), soil and background samples are to be tested for cadmium, hexavalent chromium and lead, on a totals basis in accordance with 40 CFR Part 261, Appendix III.
4. Subgrade which shows contamination above background levels of these hazardous constituents must be handled and disposed of as hazardous waste. If all waste constituents cannot be removed from the site, post-closure care and monitoring must be provided in accordance with 725.358(b).



Page 2

5. Wipe tests must be conducted in accordance with the attached guidance to verify that the floor of the container storage area is free from contamination by lead and PCBs. If any areas of PCB contamination or levels of lead above background are detected, proper decontamination and retesting must be conducted. Four lead background wipe test samples are to be taken from the concrete floor in the storage building at locations at least 50 feet from the container storage area.
6. A visual inspection of the storage area shall be made during closure. The results of this inspection shall be included in the closure certification. In developing a response to this requirement, the structural integrity of the concrete floor must be addressed. The presence of any cracks in the concrete or other signs of physical deterioration would indicate the storage areas may not have provided adequate secondary containment for the wastes stored in the area.
7. The results of all analyses conducted on samples taken during the closure process shall be included in the certification that closure is complete.
8. All wastes generated during decontamination of the storage area shall be taken to a permitted hazardous waste facility for treatment or disposal.
9. All equipment used during the closure process shall be decontaminated after use.

When closure is complete the owner or operator must submit to the Director certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan. These certifications must be received at this Agency within 30 days after closure, or by March 31, 1986.

If the Agency determines that implementation of the closure plan fails to satisfy the requirements of 25 IAC 725.211, the Agency reserves the right to amend this closure plan.

All certifications, logs, or reports which are required to be submitted to the Agency by the facility should be mailed to the following address:

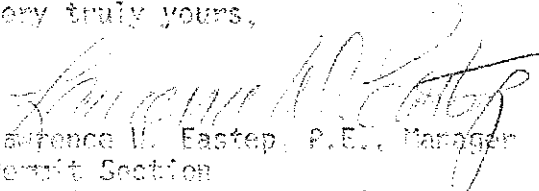
Illinois Environmental Protection Agency
Division of Land Pollution Control
Mail Code #24
Permit Section
2200 Churchill Road
Springfield, Illinois 62706



Page 3

This letter constitutes final action on this matter by the Agency. Should you have any questions concerning this, please contact Bob Carson at 217/782-6762.

Very truly yours,


Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control

LINE:RAC:ct/151F,9-17


Enclosure 

cc: Newwood Region
Division File
Financial Assurance Unit
U.S. EPA, Region V --- Ann Bullock
Bob Carson



WIPE TEST PROCEDURE FOR LEAD

1. Wipe test samples shall be taken at intervals of twenty feet throughout the container storage area.
2. The wipe tests shall be conducted in the following manner:
 - a. Wet a polypropylene cloth filter with a weak sulfuric acid solution (0.1 N).
 - b. Wipe a marked-off one square foot area in strips until the entire area has been wiped.
 - c. Wipe the area a second time as described above, but in a direction at right angles to that which the area was initially wiped.
3. Once the wipe test is completed, the cloth filter shall be placed in a large glass container, completely immersed in a known volume of a weak sulfuric acid solution (0.1 N) and capped. To determine the level of lead which was removed during the wipe test, the following procedure shall be followed:
 - a. Keep the cloth filter immersed in the weak acid solution and agitate gently for 24 hours. The liquid which is in the glass container shall be analyzed for total lead. Calculations shall then be made to determine the surface concentrations of lead present in the area where the wipe tests were conducted (ng/sq. ft.).
 - b. A field blank and three external spikes containing a known amount of lead (1 ng, 10 ng and 100 ng) shall also be submitted for analysis. The analysis of these samples is necessary to indicate whether the physical and chemical properties of the polypropylene have any effect on the analytical results for the samples.
4. As an alternative to using a polypropylene cloth, a lint-free cotton cloth or filter paper may be used in conducting the wipe tests. If this alternative is chosen, the cloth or paper shall be placed in a glass container after the sample is taken, and sealed with an appropriate cap. The cloth shall be analyzed to determine the total amount of lead removed during the test (ng/sq. ft.) using the procedures set forth in SM-846. A field blank of a wetted cloth shall also be submitted for analysis to determine if the cloth has any effect on the analysis for lead.



WIPE TEST FOR PCBs

1. Samples shall be taken at intervals of twenty feet throughout the container storage area.
2. The wipe tests shall be conducted in the following manner:
 - a. Wet a polypropylene cloth filter or a lint-free cotton cloth with high purity hexane.
 - b. Wipe a marked-off one square foot area in strips until the entire area has been wiped.
 - c. Wipe the area a second time as described above, but in a direction at right angles to that which the area was initially wiped.
3. When the wipe test is complete, seal the cloth or filter in a clean glass bottle.
4. Ship the sample bottles to the laboratory for analysis.

DO:ct/151F,12-13

Log # Closure

LTV Steel Company

EAF
RAC

November 21, 1985

Express Mail

Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Attn: Mr. Lawrence W. Eastep, PE, Manager
Permit Section
Division of Land Pollution Control

Re: 0316500002 - Cook County
Chicago/LTV (Republic) Steel Company, Inc.
ILD 056623598
Plans Received by IEPA July 22, 1985
Log #C-118

Gentlemen:

This is in response to your letter dated October 18, 1985 regarding the closure plan for container storage (S01) and additional information for closure of the K061 waste pile (S03).

LTV Steel is submitting four copies of a document entitled "Addendum-Closure Plan for Drum Storage LTV Steel Company Chicago Works Bar Division" for your review and approval. In addition, LTV Steel is submitting four copies of a document entitled "Addendum No. 2-Closure Plan for EAF Dust Pile LTV Steel Company Chicago Works Bar Division." As you may recall, the original EAF Dust Pile Closure Plan was submitted and approved by Illinois EPA on July 14, 1983. The first addendum to this plan was submitted on July 17, 1985.

LTV Steel certified that the EAF Dust pile was closed in accordance with the approved plan and first addendum, and submitted documentation on October 21, 1985 from a registered professional engineer certifying closure. LTV Steel will also perform the suggested additional closure requirements as set forth in enclosed Addendum No. 2 and re-submit documentation certifying closure. Before beginning the additional closure requirements, LTV Steel will await notification from IEPA that these additional requirements set forth in Addendum No. 2 are satisfactory.

Also enclosed are the updated financial assurance mechanisms for the facility. These include a statement of name change from Republic Steel Corporation to LTV Steel Company, Inc., a name change rider to the Financial Guarantee Bond No. 018 S-75159, a Certificate of Liability Insurance which specifies the minimum limits LTV Steel was able to obtain and updated Schedule A, Schedule B and Exhibit A to the Trust Agreement No. 141548-4. As

RECEIVED

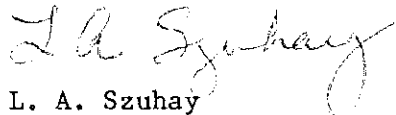
NOV 22 1985

Mr. Lawrence W. Eastep
November 21, 1985
Page Two

stated in our letter of June 3, 1984 (attached), LTV Steel proposes to continue the above referenced Bond and Trust Agreement until both facilities have been certified closed. The Bond amount is \$1,539,200.

Should you have any questions, please contact me at the number listed below.

Sincerely,



L. A. Szuhay
Manager-Waste Management
Environmental Control

IAS/fh

Attachment

cc: Mark Rowland, Burgess & Niple
U.S. EPA Region V, Attn: Ann Budich

1388a

log C-118



P 594 558 884 ✓

File

Illinois Environmental Protection Agency · 2200 Churchill Road, Springfield, IL 62706

217/782-6762

Refer to: 0316500002 -- Cook County
Chicago/Republic (LTV) Steel
ILD 056623598
Received July 22, 1985
Log #C-118

October 18, 1985

LTV Steel Company
Corporate Environmental Control Department
3100 East 45th Street
Cleveland, Ohio 44127

Gentlemen:

The closure plan for container storage (S01) and the additional information for closure of the K061 waste pile (S03) has been reviewed. Because of the following deficiencies, it has been disapproved.

1. The closure plan does not state a closure performance standard (725.211).
2. Washwater from listed waste decontamination is a hazardous waste and cannot be allowed to runoff, infiltrate into the soil or be dropped to sewers merely because it passes the EP Toxicity test (725.103(c)).
3. No provision was made for decontamination of the container storage floor slab (725.212(a)).
4. In the vicinity of the waste pile, soil must be removed to background levels of K061 constituents (hexavalent chromium, lead and cadmium). All sampling and analytical methods shall be in accordance with Appendix III of 40 CFR Part 261. "Background" values for soils should be established for site specific waste constituents that make up the wastes handled at the facility. A minimum of four (4) samples should be used to establish "background" in soils to account for natural occurrences and variability within each distinctive soil horizon. Background samples must be collected at an uncontaminated area on site. Based on waste type, mobility, operation practices and soil type, an estimate of contamination depth should be made and "background" samples taken at comparable depths. Multiple soil horizons should have "background" established separately (i.e., minimum of four (4) samples per each soil horizon). A grid system for sampling purposes should be established over the unit to be closed. For a unit size of 0.001 to 0.25 acre, use a 20 foot square grid interval; for a unit size of 0.25 to 3.00 acres, use a 40 foot square grid interval; and for unit size of over 3.00 acres, use a 60 foot square grid interval unless otherwise justified in the closure plan. Depth increments for soil



Page 2

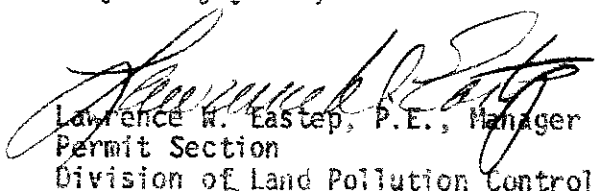
sampling within contaminated areas should be 3 to 6 inches for clayey soil and one (1) foot for silts and sands. These increments could be modified based upon knowledge of waste and site characteristics. Samples shall be tested for and reported as total concentrations.

5. If all contaminated soil is not removed, post-closure care and groundwater monitoring in accordance with 725.410 must be provided (725.358(b)).
6. Certification of closure in accordance with the approved closure plan must be provided by the owner or operator, in addition to the certification by an independent registered Professional Engineer (725.215).
7. No cost estimate was provided for soil sampling and analysis.
8. No cost estimate was provided for certification of closure.
9. The financial guarantee bond update was due June 30, 1985.

Pursuant to 725.212(d), you should submit a revised closure plan within 30 days which adequately responds to the above noted comments. Failure to submit a revised plan within 30 days will be considered non-compliance with the interim standards of 725 Subpart G -- Closure and Post-closure and Subpart H -- Financial Requirements.

Should you have questions or desire to schedule a meeting to discuss the closure plan, please contact Bob Carson of my staff at 217/782-9798.

Very truly yours,


Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control

LWE:RAC:sd/2521e/32-33

cc: Northern Region
Division File ✓
Financial Assurance Unit
Bill Radlinski
USEPA, Region V -- Ann Budich



Illinois Environmental Protection Agency · 2200 Churchill Road, Springfield, IL 62706

217/792-6762

Refer to: 0310500002 -- Cook County
Chicago/Republic (LTV) Steel
ILD 056023590
Received July 22, 1985
Log #C-118

October 25, 1985

L. A. Szuhay
LTV Steel Company
Corporate Environmental Control Department
3100 East 45th Street
Cleveland, Ohio 44127

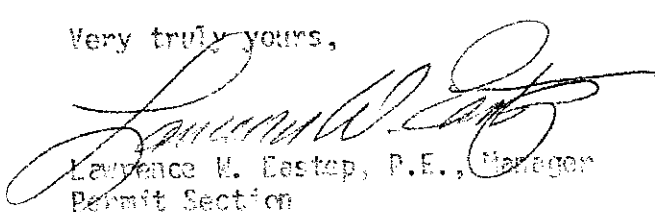
Gentlemen:

Part 720.215 of 25 Ill. Adm. Code, Subtitle C states that certification of closure is to be provided by the owner/operator and by an independent registered Professional Engineer in accordance with the specifications in the approved closure plan. The "Addendum to Closure Plan - EAF Dust Pile" submitted on July 17, 1985 constitutes an unapproved modification of the original closure plan. This modification was disapproved by our letter of October 18, 1985 because the modified plan did not provide for removal of all VOC constituents.

Because of the deficiencies of your closure plan modification, we cannot accept a closure certification which is based on the modification, and are returning the certification documents. Certification must be resubmitted when closure in accordance with an approved closure plan can be certified.

Should you have questions concerning this matter, please contact Bob Carson of my staff at 217/792-9798.

Very truly yours,


Lawrence M. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control

LME:RAC:14/2345E/2

cc: Northern Region
Division File
Financial Assurance Unit
Bill Radzinski
U.S. EPA, Region V -- Ann Budich

Page - 118

LTV Steel Company



July 17, 1985

Certified Mail-Return Receipt Requested

Illinois Environmental Protection Agency
Division of Land Pollution Control
2200 Churchill Road
Springfield, Illinois 62706

Attn: L. Eastep, Manager
Permit Section, DLPC

Re: LTV Steel Company, Inc.
(Republic Steel Corporation)
Chicago Works
11600 S. Burley Avenue
Chicago, Illinois 60617
EPA ID No. ILD 056623598

Dear Mr. Eastep:

In November 1984, LTV Steel Company received a formal request from U.S. EPA to submit a Part B application no later than July 31, 1985 for the above referenced facility. On July 14, 1983, then Republic Steel Corporation received an approval from Illinois EPA on a closure plan submitted to eliminate the existing waste piles of Electric Arc Furnace Dust (K061) at the plant. As indicated in the June 3, 1985 correspondence to Illinois EPA and the May 28, 1985 correspondence to U.S. EPA, it is similarly the intent of LTV Steel to close the existing containerized storage area under RCRA interim status.

Enclosed for your review and approval are two copies of the closure plan (one copy to U.S. EPA) for the containerized storage area entitled "Closure Plan Drum Storage Area" dated June, 1985. It is anticipated that the closure of the drummed storage area can be performed within 90 days after the closure plan is approved. Following the certification of closure, the drum storage area will be used for temporary storage (less than 90 days) of hazardous wastes in drums in accordance with all applicable regulations. The certification of closure will be attested to by a registered professional engineer and submitted to Illinois EPA and U.S. EPA.

Also enclosed are two copies of the addendum to the closure plan (one copy to U.S. EPA) for the waste piles approved by Illinois EPA on July 14, 1983. This document is entitled "Addendum to Closure Plan EAF Dust Pile" dated June, 1985. Closure activities on the existing waste piles began in 1983 and the addendum is revising the schedule for completion forward to finish these activities prior to November 7, 1985. Following the certification of closure by a registered professional engineer, the site will be inspected weekly for

RECEIVED

JUL 22 1985

Mr. L. Eastep
July 17, 1985
Page 2


a period of 10 weeks and, subsequently, once every 4 months to ensure that it remains properly closed. The addendum to the approved closure plan includes provisions for decontamination of equipment, an estimate of closure costs and the revised closure completion schedule.

As previously forwarded to U.S. EPA on June 5, 1985, the recycling of coal tar decanter sludge (K087) back to the coke ovens meets the criteria for closed-loop recycling and, by the new U.S. EPA Definition of Solid Waste (50 FR 614, January 4, 1985), is not a solid waste as 100% of the material is recycled within one year and the material is not placed on the land or burned as a fuel.

After the two certification of closure activities have been performed, LTV Steel will request formal withdrawal of the RCRA permit from U.S. EPA.

Should you have any questions regarding any of the above, please contact Mr. Larry Szuhay at 216-429-6475.

Sincerely,



W. L. West, Director
Environmental Control

WLW/fh

Enclosure

cc: Burgess & Niple, Ltd.
Attn: Mr. Mark Rowland

cc: U. S. Environmental Protection Agency
Region V - RCRA Activities
Attn: Edith M. Ardiente
Chief, Technical

0953a

RECEIVED

JUL 22 1985

EPA-D/RC

Log E-118

LTV Steel Company



July 17, 1985

Certified Mail-Return Receipt Request

U. S. Environmental Protection Agency
Region V - RCRA Activities
230 South Dearborn Street
Chicago, Illinois 60690-3587

Attn: Edith M. Ardiente
Chief, Technical Programs

Re: LTV Steel Company
(Republic Steel Corporation)
Chicago-Bar Division
EPA ID No. 056623598

Dear Ms. Ardiente:

Your letter of June 25, 1985, regarding "Corrective Action Requirements" has been forwarded to my attention. I am enclosing a copy of LTV Steel Company's May 28, 1985 letter to Karl Klepitsch, responding to a similar request by his letter dated April 26, 1985.

Because LTV Steel intends to close the electric arc furnace (EAF) dust waste pile prior to November 7, 1985, and the containerized storage area 90 days after Illinois EPA approval of the closure plan, the Company will not be "seeking a permit," and Section 3004(u) of the Solid Waste Disposal Act will not be applicable.

Section 3004(u) requires only that permits issued after November, 1984 provide for corrective action for continuing releases. Since LTV Steel will be closing the storage piles prior to November 7, 1985, no permit will be issued after November 7, 1984. In addition, since LTV Steel intends to "clean close" the storage piles by completely removing the waste and any contaminated material under the waste, a post-closure permit should not be required.

I am returning the certification statement enclosed with your June 25 letter unexecuted. Should there be any changes in LTV Steel's closure plans, I will let you know.

RECEIVED

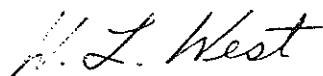
JUL 22 1985

IEPA-DLPG

Ms. E. M. Ardiente
July 17, 1985
Page Two

Should you have any questions, please contact Mr. Larry Szuhay at (216)
429-6475.

Sincerely,



W. L. West, Director
Environmental Control

WLW/fh

Enclosure

cc: Illinois EPA
2200 Churchill Road
Springfield, IL 62706
Attn: L. Eastep, Manager
Permit Section

0960a

RECEIVED
JUL 22 1985
EPA-DLPG

LTV Steel Company



May 28, 1985

Certified Mail - Return Receipt Requested

United States Environmental Protection Agency
Region V - RCRA Activities
Post Office Box A3587
Chicago, Illinois 60690

Attn: Karl J. Klepitsch, Jr.
Chief Solid Waste Branch

Re: LTV Steel Company
(Republic Steel Corporation)
Chicago-Bar Division
11600 South Burley Avenue
Chicago, Illinois 60617
EPA ID No. 056623598

Dear Mr. Klepitsch:


Your letter of April 26, 1985 regarding "Corrective Action Requirements" has been forwarded to my attention.

In November 1984, LTV Steel Company received a formal request from U.S. EPA to submit a Part B application no later than July 31, 1985 for the above referenced facility. On July 14, 1983, then Republic Steel received an approval from Illinois EPA on a closure plan submitted to eliminate the existing waste piles of Electric Arc Furnace Dust (K061) at the plant. Similarly, it is LTV Steel's intent to close an existing containerized storage area and submit a closure plan to the agency prior to July 31, 1985. Thus, all of the storage facilities identified in the Part A application would then close under interim status allowing a formal withdrawal of the RCRA permit.

Since LTV Steel is closing the facilities under interim status and will not be seeking a final RCRA Part B permit, the information requested will not be applicable to our facility.

Should you have any questions, please contact the writer at 216-429-6475.

Sincerely,


L. A. Szalay
Manager-Waste Management
Environmental Control

IAS/fh

Attachment

cc: Illinois EPA
2200 Churchill Road
Springfield, Illinois 62706
Attn: L. Eastep, Manager
Permit Section

0782a

RECEIVED
JUL 22 1985
EPA-DLEG



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

230 SOUTH DEARBORN ST.

CHICAGO, ILLINOIS 60604

JUN 25 1985

REPLY TO THE ATTENTION OF:
5HS-13

CERTIFIED MAIL #P246 373 367
RETURN RECEIPT REQUESTED

Mike Thomas, Coordinator
Environmental Standards
Republic Steel Corp. - Chicago Dist.
11600 South Burley Avenue
Chicago, Illinois 60617

Re: Corrective Action Requirements,
Hazardous and Solid Waste
Amendments of 1984
Republic Steel Corp. - Chicago Dist.
ILD 056623598

Dear Mr. Thomas:

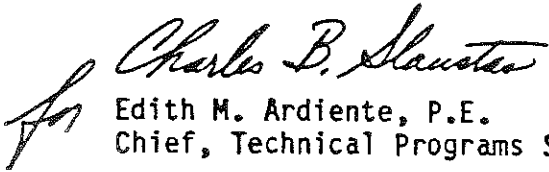
As you are aware, we are currently evaluating your request for closure of your facility referenced above which is regulated under the Resource Conservation and Recovery Act (RCRA).

On November 8, 1984, the Hazardous and Solid Waste Amendments of 1984 (the Amendments) were enacted to amend RCRA. Under Section 206 and Section 233 (copies enclosed) of the Amendments, all facilities "seeking a permit" (taken to mean interim status facilities) must provide for corrective action for all releases of hazardous waste or constituents from any solid waste management unit, regardless of the time at which waste was placed in the unit. Please note that both hazardous and non-hazardous waste can meet the definition of solid waste under 40 CFR 261.2. Under the Cooperative Agreement with the United States Environmental Protection Agency (U.S. EPA), the State has agreed to implement the corrective action requirements of the Amendments prior to the State getting formally authorized for the provisions of the Amendments.

Consequently, we must determine whether such releases have ever occurred at the facility site. If they have, we must ensure that corrective actions either have been taken, or will be taken, pursuant to a decision on your closure plan. An important part of our determination includes your willingness (or unwillingness) to sign the enclosed certification statement. Please read it carefully, and either sign it and return it, or return it to us unsigned with a cover letter of explanation, within three weeks of the date of this letter. Any tentative decision we make regarding releases of hazardous waste or hazardous constituents to the environment will be included in a public notice inviting public comment on our tentative decision. Public notice will be in a newspaper of general circulation in the area of the facility.

Please call the previously identified contact for this permit application if you have any questions, or wish to discuss this matter further.

Sincerely yours,

 Charles B. Stauster

Edith M. Ardiente, P.E.
Chief, Technical Programs Section

Enclosures

LTV Steel Company



November 20, 1984

Mr. Rama K. Chaturvedi
Mr. Andrew Vollmer
Illinois EPA
2200 Churchill Road
Springfield, Illinois 62706

RECEIVED

DEC 05 1984

WMD-RAIU
EPA, REGION V

Dear Messrs. Chaturvedi and Vollmer:

G, TSD, UIC, PA

This will confirm our phone conversations of November 9 and 16, 1984 during which I clarified the operation of waste acid storage facilities at our Hennepin Works, EPA ID No. ILD000781591, and expressed concern regarding IEPA's recent public notice indicating closure of these facilities.

As I indicated, LTV's intent is to operate these facilities such that the storage of waste acid for periods greater than 90 days does not occur. Accordingly, withdrawal of Hennepin's RCRA Part A Hazardous Waste Permit Application was requested in my letter of September 18, 1984 to Mr. Karl J. Klepitsch of U.S. EPA, Region V.

Included with the withdrawal request was a plan for closure of the waste acid storage facilities which had been requested by U.S. EPA if, at any time since November 19, 1980, the storage of waste acid for periods greater than 90 days had occurred (see U.S. EPA letter of 8-30-84, copy enclosed). As it is possible that such storage may have occurred, a plan was filed as requested.

However, as indicated in Item I, D of the closure plan, the plan is intended for use only at such time as the tanks would be removed from service, an event not expected to occur unless Hennepin's production facilities were discontinued.

LTV Steel presently has no plans to remove these tanks from service as they are essential to Hennepin's continued operations. Similarly, decontamination of the acid storage facilities is not intended at this time as they are in continuing service and such efforts would be of no benefit.

I hope this will serve to clarify the situation. Should you have any questions on this information, please let me know.

Very truly yours,

S. A. Green

S. A. Green
Environmental Management Engineer

SAG/fh
Enclosure

cc: Mr. Karl J. Klepitsch, Jr., Chief
Waste Management Branch
U.S. EPA, Region V
230 South Dearborn Street
Chicago, Illinois 60604

RECEIVED

NOV 28 1984

WASTE MANAGEMENT
BRANCH



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST
CHICAGO, ILLINOIS 60604

AUG 30 1984

REPLY TO ATTENTION OF:
5HW-13

S. A. Green, Environmental Control Engineer
Jones & Laughlin Steel Corporation
Graham Laboratory
900 Agnew Road
Pittsburgh, Pennsylvania 15227

RE: Request for Information--Hazardous Waste Permit
Review (Storage Fewer Than 90 Days)
FACILITY NAME: Jones & Laughlin Steel Corp., Hennepin Works
U.S. EPA ID NO.: ILD000781591

Dear Mr. Green:

This is to acknowledge that the United States Environmental Protection Agency has completed reviewing your Part A Hazardous Waste Permit Application and your letter of July 19, 1984. Our review indicates your facility may not require a permit under Section 3005 of the Resource Conservation and Recovery Act, as amended; however, further clarification is needed.

Based on the information submitted, your facility appears to accumulate wastes generated on-site for fewer than 90 days in containers or tanks, as defined in 40 CFR Part 262.34 (enclosed). Please review these requirements, to determine if your facility qualifies as an accumulation facility from November 19, 1980, to the present. If it does, a permit is not required, and you should withdraw your permit application. Please submit your determination in writing, signed and certified by an authorized person, in accordance with 40 CFR Part 270.11 (enclosed), requesting that your application be withdrawn. If at any time, since November 19, 1980, your operation included treatment, storage, or disposal of hazardous waste subject to 40 CFR Part 265, a closure plan must be filed with the withdrawal request. Requirements for closure are found in 40 CFR Part 265 Subpart G (enclosed).

If your review indicates that a permit is required, but certain information on your application is incorrect, please submit a revised Part A with the appropriate changes to this Regional Office. If no response is received in this office within 30 days, we will assume your facility requires a permit. Accordingly, we will continue to process your application.

Please contact the Regulatory Analysis and Information Unit at (312) 886-6148 for assistance, if you have any questions. Please refer to "Request for Information--Storage Fewer Than 90 Days," in all correspondence on this matter.

Sincerely yours,

A handwritten signature in cursive script, reading "Karl J. Klepitsch Jr".

Karl J. Klepitsch, Jr., Chief
Waste Management Branch

Enclosures

cc: D. L. Wise, President-Western Div

217/782-6762

Refer to: 1558010005 --- Putnam
Hennepin/Jones & Laughlin Steel, Inc.
ILD00781591
000781591

RECEIVED

DEC 07 1984

December 3, 1984

Jones & Laughlin Steel Corporation
Route 71
Hennepin, Illinois 61327

WASTE MANAGEMENT
BRANCH

Attention: S. A. Green

Gentlemen:

The closure plans submitted by S. A. Green, dated September 18, 1984, and received by this Agency on October 1, 1984, to close the hazardous waste storage area are hereby approved. The approval of these plans is further subject to the following modifications and conditions:

1. Closure approval does not include the injection well. The UIC Plugging and Abandonment Plan is pending Agency review.

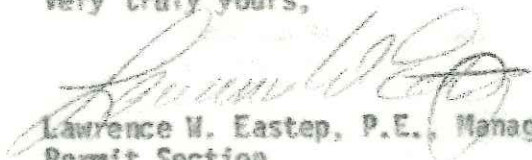
When closure is complete the owner or operator must submit to the Director certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

All certifications, logs, or reports which are required to be submitted to the Agency by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Division of Land Pollution Control
Permit Section
2200 Churchill Road
Springfield, Illinois 62706

Should you have any questions concerning this matter, please contact Karen Nachtwey at 217/782-0892.

Very truly yours,


Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control

LWE:KN:jab/22290/11
PLC

cc: Rockford Region
Division File
Financial Assurance Unit
USEPA - Region V

RECEIVED

DEC 07 1984

WASTE MANAGEMENT
BRANCH

Reference to 77500-0000 - Permit
Waste Management Branch
11/20/84

December 3, 1984

James A. Langley, Inc., Corporation
Route 1
Baltimore, Maryland 21104

Attention: J. A. Greer

Dear Sir:

The closure plans submitted by J. A. Greer, dated September 18, 1984, and
received by this Agency on October 1, 1984, for closure of the hazardous waste
storage area are hereby approved. The approval of closure plans is further
subject to the following modifications and conditions:

1. Closure approval does not negate the infection work. The UIC Piping
and Abatement Plan is pending Agency review.

When closure is complete the owner or operator must submit to the Director
certification both by the owner or operator and by an independent registered
professional engineer that the facility has been closed in accordance with the
specifications of the approved closure plan.

All certifications, logs, or reports which are required to be submitted to the
Agency in the future should be mailed to the following address:

Illinois Environmental Protection Agency
Division of Land Pollution Control
Permit Section
3500 Churchill Road
Springfield, Illinois 62768

Should you have any questions concerning this matter, please contact Karen
Bachman at 513-787-0893.

Very truly yours,

Lawrence M. Eason, P.E., Manager
Permit Section
Division of Land Pollution Control

LME:ML (44-5250)11

cc: District Region
Division File

Financial Assistance Unit
Region V

LTV Steel Company



July 17, 1986

Via Express Mail

Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Attn: Division of Land Pollution Control
Mail Code #24
Permit Section

Re: 0316500002 - Cook County
Chicago/LTV Steel
ILD 056 623 598

Gentlemen:

Enclosed are four copies (1 original, 3 copies) of the Certification of Closure both by LTV Steel Company as owner/operator and by Burgess & Niple, Limited as independent registered professional engineers for the above referenced facility. The certification is being submitted in accordance with the Illinois EPA closure plan approval letters of January 21, 1986 and February 6, 1986, and LTV Steel's letter of February 4, 1986 to Illinois EPA.

By way of carbon copy, two copies (1 original, 1 copy) of the Certification of Closure are being sent to U.S. EPA Region V in Chicago, Illinois.

The facility will continue to operate as a generator (only). LTV Steel will file a revised Notice of Hazardous Waste Activity and Revised Part A to reflect the change in status after acknowledgement from Illinois EPA. Finally, the financial assurance instruments will similarly be requested to be returned at that time.

Should you have any questions, please contact the writer at the number listed below.

Sincerely,

L. A. Szuhay
Manager-Solid and Hazardous Waste
Environmental Control

LAS/fh

Enclosure

cc: U.S. EPA, Region V ✓
Attn: RCRA Activities

cc: Burgess & Niple, Ltd.
Columbus, OH
Attn: Janet Barker-Stonerook

2114a



Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

ILD 056 623 598

USEPA ID Number

LTV Steel Company, Inc.

Chicago Works

Facility Name


Signature of Executive Officer

J. T. Anderson
Vice President-Bar
Name and Title

7/14/86
Date

OWNER CERTIFICATION OF CLOSURE

I, J. T. Anderson of
(Owner or Operator)

LTV Steel Company, Inc.
Chicago Works
11600 S. Burley Avenue
Chicago, Illinois
(EPA ID ILD 056 623 598)
(Name and Address of Hazardous Waste Facility)

hereby state and certify that, to the best of my knowledge and
belief, the container storage area (S01) and electric arc furnace
dust (K061) storage pile (S03) located at the above named facility
have been closed in accordance with the specifications in the
approved closure plan.

J. T. Anderson
Vice President-Bar

7/14/86
Date

LTV Steel Company



October 21, 1985

Certifield Mail-Return Receipt Request

Illinois EPA
Division of Land Pollution Control
2200 Churchill Road
Springfield, Illinois 62706

Attn: L. Eastep, Manager
Permit Section

Re: LTV Steel Company, Inc.
(Republic Steel Corporation)
Chicago Works
11600 S. Burley Avenue
Chicago, Illinois 60617
EPA ID ILD 056623598

EAF Dust (K061) Storage Pile (S03) Closure

Dear Mr. Eastep:

Enclosed are the owner/operator and registered professional engineer Certification Statements for the EAF Dust Storage Pile Closure pursuant to the "Addendum to Closure Plan EAF Dust Pile" submitted to Illinois EPA on July 17, 1985. The plan was originally approved by the Illinois EPA on July 4, 1983. The addendum was submitted to revise the schedule of completion forward to finish closure activities prior to November 7, 1985.

Should you have any questions regarding any of the above, please contact me at (216) 429-6475.

Sincerely,

L. A. Szuhay
Manager, Waste Management

LAS/dsb

cc: Burgess & Niple, LTD
Attn: Mr. Mark Rowland

cc: USEPA
Region V - RCRA Activities
Attn: Edith M. Ardiente
Chief Technical Permit Section

RECEIVED
OCT 23 1985
EPA-RCRA

OWNER CERTIFICATION OF CLOSURE

I, J. T. Anderson of
(Owner or Operator)

LTV Steel Company, Inc. Chicago Works

(EPAID ILD 056 623 598)

(EAF Dust (K061) Storage Pile (S03)) hereby

(Name and Address of Hazardous Waste Facility)

state and certify that, to the best of my knowledge and belief, the

above named hazardous waste facility has been closed in accordance

with the facility's closure plan, and that closure was completed on

the 21st day of October, 1985.

J. T. Anderson
Signature

10/21/85
Date

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

EPAID ILD 056 623 598

LTV Steel Company Inc.
Company Name


Signature of Executive Officer

Vice President - LTV Steel Company
Bar Division
Title

10/21/85
Date

LTV STEEL COMPANY
CHICAGO WORKS BAR DIVISION
EAF DUST PILE CLOSURE
CERTIFICATION STATEMENT

Burgess & Niple, Limited, Engineers and Architects at the request of LTV Steel Company, the Chicago Works Bar Division, has reviewed the "Modified Closure Plan for the Bermed and Tarped EAF Dust Storage Pile" which was approved by Illinois Environmental Protection Agency (EPA) in their letter dated July 14, 1983 and has prepared an addendum to said closure plan titled "Addendum, Closure Plan EAF Dust Pile, LTV Company, Chicago Works Bar Division, June 1985" hereinafter referred to as "Closure Plan." This site was visited by Burgess & Niple, Limited personnel on March 25, 1985, May 22, 1985, August 5, 1985, September 12, 1985, and October 9, 1985 to confirm the closure in accordance to the "Closure Plan."

On the day of the site visit of September 12, 1985, visual inspection indicated that the EAF dust had been removed down to the underlying material. On the day of the site visit of October 9, 1985, visual observations indicated that the slag underlying the EAF dust had been removed.

These observations are further substantiated by LTV's "Waste Tracking System -- Chicago Waste Generation Report" records of hazardous waste material hauled from the site for disposal. On March 25, 1985, Burgess & Niple, Inc. estimated that 8,000 tons of EAF dust remained at the site. Records indicated that from April through September, a total of 8,586 tons of material had been removed. Of this total, 698 tons had been removed after the September 12, 1985 site visit. The "Closure Plan" indicates that 500 tons is equivalent to 4 inches of underlying material at the site. Since visual observations on the site visit of September 12, 1985 indicated that removal had progressed to the underlying material and since an additional 698 tons were removed after that visit, it is reasonable to assume that all of the EAF dust and 4 inches of underlying material has been removed as required by the "Closure Plan."

As specified in 40 CFR, Part 265, Subpart G (45 FR 33242, May 19, 1980) of the Resource Conservation and Recovery Act of 1976, Burgess & Niple, Limited verifies that the EAF Dust Pile has been closed in conformity and accordance with the prepared "Closure Plan."

Thomas D. Ashton
Thomas D. Ashton, P.E.
Ohio No. E43114

Robert Mahan
Robert Mahan, P.E.
Illinois No. 062-025089

Date October 17, 1985

RECEIVED

OCT 24 1985

11/1/85

**REPORT ON CLOSURE ACTIVITIES
EAF DUST AND DRUM STORAGE AREAS
CHICAGO WORKS
LTV STEEL COMPANY, INC.**

JULY 1986

Burgess & Niple, Limited
Engineers and Architects



REPORT ON CLOSURE ACTIVITIES
EAF DUST AND DRUM STORAGE AREAS
CHICAGO WORKS
LTV STEEL COMPANY, INC.

JULY 1986

BURGESS & NIPLE, LIMITED
Engineers and Architects
5085 Reed Road
Columbus, OH 43220

TABLE OF CONTENTS

| | Page |
|---|------|
| 1.0 INTRODUCTION | 1 |
| 1.1 EAF Dust Storage Area | 1 |
| 1.2 Drum Storage Area | 3 |
| 2.0 SOIL SAMPLING | 5 |
| 2.1 Soil Boring No. 1 | 5 |
| 2.2 Soil Boring No. 2 | 5 |
| 2.3 Soil Boring No. 3 | 5 |
| 2.4 Soil Boring No. 4 | 6 |
| 2.5 Soil Boring No. 5 | 6 |
| 2.6 Soil Boring No. 6 | 6 |
| 3.0 BACKGROUND SOIL AND SLAG | 7 |
| 3.1 Background Site 1 | 7 |
| 3.2 Background Site 2 | 7 |
| 3.3 Background Site 3 | 7 |
| 3.4 Background Site 4 | 7 |
| 4.0 SHALLOW SLAG SAMPLING | 9 |
| 5.0 WIPE TESTS | 10 |
| 6.0 SAMPLE IDENTIFICATION | 11 |
| 7.0 ANALYTICAL RESULTS | 14 |
| 7.1 Procedures | 14 |
| 7.2 Soil and Slag Samples | 14 |
| 7.3 Wipe Tests | 23 |
| 8.0 CLOSURE STATEMENT AND CERTIFICATION | 25 |
| APPENDIX | |

LIST OF TABLES

| Table No. | Description | Page |
|-----------|--|------|
| 1 | Soil and Slag Sample Identification | 12 |
| 2 | Wipe Test Sample Identification | 13 |
| 3 | Comparison of Shallow Slag Samples to Background Slag Samples | 17 |
| 4 | Comparison of Soil Samples Near EAF Dust Storage Site to Background Soil Samples | 18 |
| 5 | Comparison of EP Toxicity Results on Slag Samples | 19 |
| 6 | Comparison of EP Toxicity Results on Soil Samples | 20 |
| 7 | VHS Model Values for Slag Samples | 21 |
| 8 | VHS Model Values for Soil Samples | 22 |
| 9 | Wipe Test Analysis | 24 |

LIST OF FIGURES

| Figure No. | Description | Page |
|------------|--|------|
| 1 | Slag and Soil Sampling Locations at Closed EAF Dust Storage Area | 2 |
| 2 | Wipe Test Locations - Drum Storage Area | 4 |

**REPORT ON CLOSURE ACTIVITIES
EAF DUST AND DRUM STORAGE AREAS
CHICAGO WORKS
LTV STEEL COMPANY, INC.**

1.0 INTRODUCTION

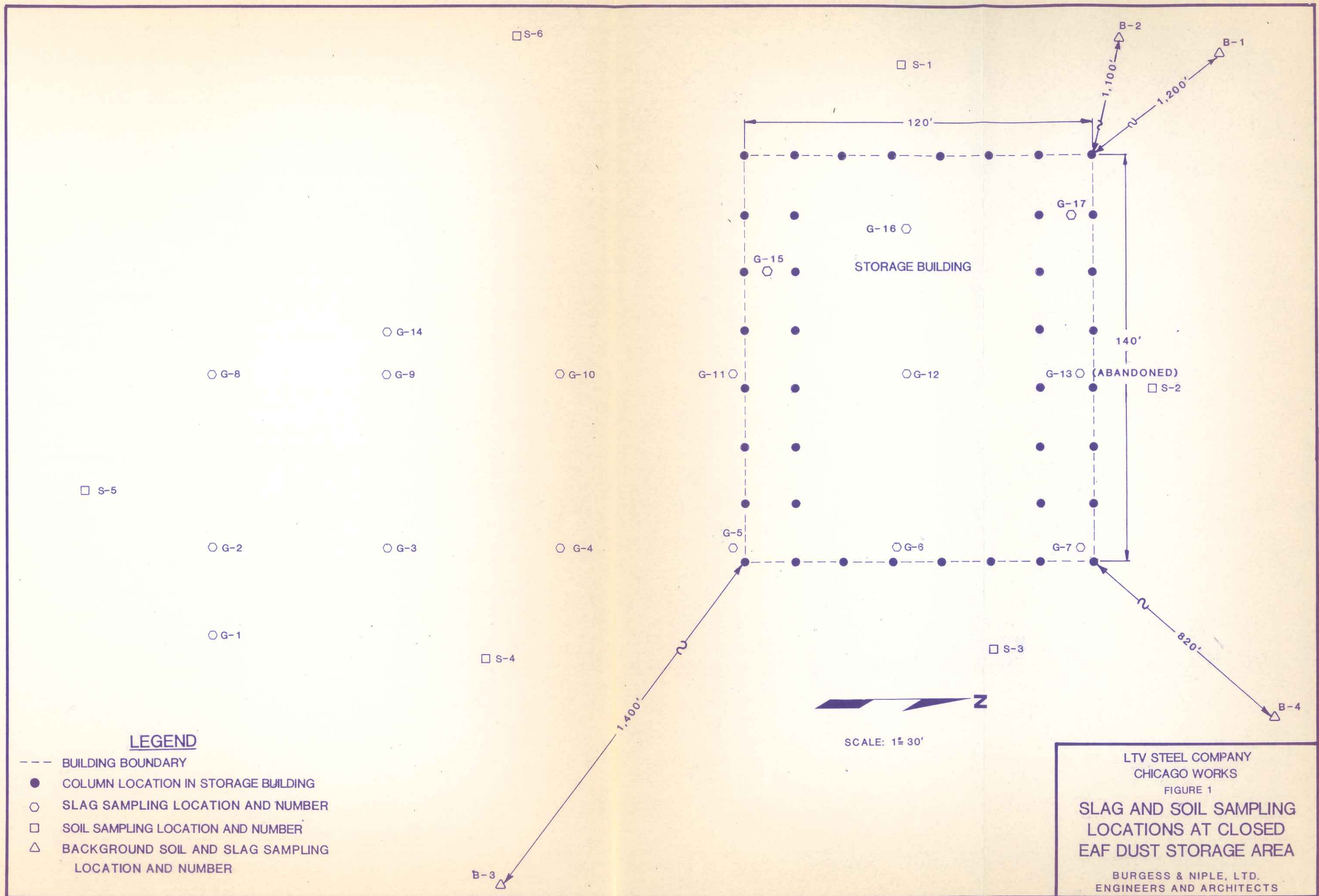
LTV Steel Company, Inc. (LTV Steel) owns and operates a steel mill near Chicago, Illinois. The Chicago Works Bar Division has a hazardous waste storage area for electric arc furnace (EAF) dust (S03) and a hazardous waste storage area for drummed hazardous wastes (S01). It is the intent of LTV Steel to close both areas.

On July 14, 1983, LTV Steel, then Republic Steel Corporation, received an approval from Illinois EPA on a closure plan submitted to eliminate the existing waste piles of EAF dust (hazardous waste No. K061) at the Chicago Works facility. The closure plan for the EAF dust storage area was amended in June and November 1985 and submitted to Illinois EPA. The closure plan for the drum storage area to allow for less than 90-day storage of hazardous waste in drums (hazardous waste No. D008) was submitted to Illinois EPA in June 1985 and amended November 1985.

Illinois EPA approved the closure plans with modifications on January 21 and February 6, 1986. LTV Steel's letter of February 4, 1986 to Illinois EPA represents further understanding of the closure plan approval. Sampling activities as required by Illinois EPA as a condition of their approval were conducted from April 7 to 10, 1986 at the EAF dust storage area and drum storage area.

1.1 EAF Dust Storage Area

A grid system was established at the EAF dust storage area to locate the shallow slag samples underneath the clean closed EAF dust pile. A 60-foot interval was utilized for the grid system and 17 sampling points for shallow slag samples were established (Figure 1).



LTV STEEL COMPANY
CHICAGO WORKS
FIGURE 1
**SLAG AND SOIL SAMPLING
LOCATIONS AT CLOSED
EAF DUST STORAGE AREA**
BURGESS & NIPLE, LTD.
ENGINEERS AND ARCHITECTS

Six soil boring locations were staked at locations in all directions from the EAF dust storage area to obtain soil samples underneath the slag. Four background soil and background slag samples were collected beyond the influence of the EAF dust storage site. The locations of the soil borings and background sites are indicated on Figure 1.

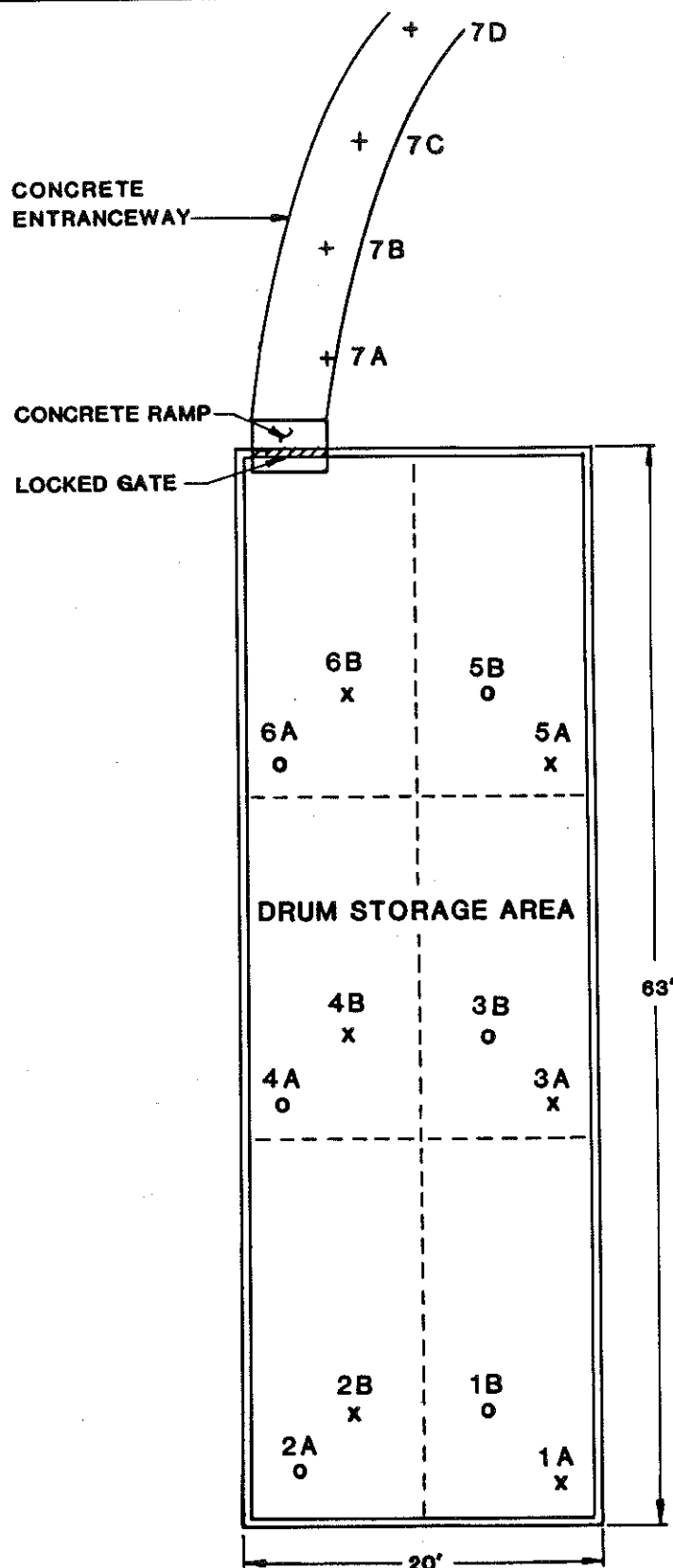
Nonhazardous dust from adjacent storage piles had blown onto the EAF dust storage site before the April sampling event. The wind-deposited material was not present in the October 9, 1985 site inspection.

1.2 Drum Storage Area

A 20-foot grid interval was established at the concrete pad in the drum storage area for wipe testing and subsequent lead and polychlorinated biphenyl (PCB) analysis. The locations of wipe test areas are shown on Figure 2.

N

SCALE: 3/32"=1'-0"



LEGEND

- x LEAD WIPE TEST LOCATION
- o PCB WIPE TEST LOCATION
- + LEAD BACKGROUND WIPE TEST (LOCATION APPROXIMATE)
- SAMPLING GRID (20 FT. INTERNAL)
- 1A SAMPLE NUMBER

LTV STEEL COMPANY
CHICAGO WORKS

FIGURE 2

**WIPE TEST LOCATIONS
DRUM STORAGE AREA**

BURGESS & NIPLE, LTD.
ENGINEERS AND ARCHITECTS

2.0 SOIL SAMPLING

Six soil samples were collected underneath the slag and any other nonhazardous materials at various locations near the EAF dust storage area as located on Figure 1. The six soil samples were collected with a drilling rig using a split spoon sampler. All holes were sealed with a cement bentonite mix after the soil sample was retrieved.

2.1 Soil Boring No. 1

Soil boring No. 1 was located about 35 feet west of the building line on top of a nonhazardous dust pile. Site grading for drainage and the suspected instability at the pile edges prevented obtaining a soil sample closer to the EAF dust storage building. The hole was drilled on April 8; and drilling was interrupted several times by rain, freezing rain, and hail. A sludge-like material was encountered from 0 to 25 feet and hard slag was encountered at 25 to 26.5 feet. A sample was obtained at 26.5 feet which consisted of about 2 inches of black material and 10 inches of sand. The bottom 8 feet of the hole was sealed with the cement-bentonite mix. The rest of the open hole was sealed with surrounding dust.

2.2 Soil Boring No. 2

Soil boring No. 2 was located north of the EAF dust storage building and was drilled on April 7. Wet material was encountered at 5 to 7 feet, and a sample was collected from 9 to 11 feet. Two split spoon samples were obtained at this site in order to obtain enough soil for analysis.

2.3 Soil Boring No. 3

Soil boring No. 3 was located 25 feet east of the EAF dust storage building by the side of the road and was drilled on April 7. Extremely hard slag was encountered. Wet material was encountered at 3.5 feet. White pea-gravel occurred at 6 feet and sand was found at 8 to 8.5 feet. A sample was obtained at 9 to 11 feet.

2.4 Soil Boring No. 4

Soil boring No. 4 was located on line with soil boring No. 3 as shown on Figure 1. Boring No. 4 was drilled on April 8. Water was encountered at 3 feet and slag was penetrated at 7.5 feet. At 8 feet beneath ground surface, 8 inches of black soil with roots overlaying sand was encountered. A sample was obtained at 8 to 9 feet.

2.5 Soil Boring No. 5

Soil boring No. 5 was located at the edge of the slag reclamation area and was drilled on April 8. Water was encountered at 4 feet. Blackish material was encountered at 7 to 7.5 feet and was sampled. When lifting the auger, a piece of plastic film came out with the auger. The sample appeared to contain organic material (roots), but it is doubtful that it represents soils undisturbed by previous activities at the site.

2.6 Soil Boring No. 6

Soil boring No. 6 was located on top of adjacent nonhazardous dust pile as shown on Figure 1. The soil boring was drilled on April 8. At 15 feet, hard material was encountered which became wet at 18 feet. A split spoon sample was obtained between 22 to 24 feet consisting of gray sand with root material and small traces of overlying black material.

3.0 BACKGROUND SOIL AND SLAG

Background soil and slag locations were selected based on information from LTV Steel personnel regarding the disposal of other materials and isolation from the EAF dust storage area. Background samples of soil and slag were obtained on April 9 from the general locations shown on Figure 1.

3.1 Background Site 1

Background site No. 1 was located in a storage yard. A sample of surface slag was obtained. The hole was drilled to 3.5 feet and wet material was encountered at 2 feet below the surface. At 2 to 3 feet below the surface, a sludge-like material underlain by a yellow-brown sandy material was encountered. Gray sand was encountered from 8.5 to 10 feet and was sampled to represent background soil conditions.

3.2 Background Site 2

A shallow background slag sample was obtained at background location 2. Two different layers of soil were encountered during drilling. Blackish material was obtained at 5 to 6 feet below the surface and then a gray sandy material at 6 to 7 feet below the sample. A sample of each material was obtained.

3.3 Background Site 3

Background No. 3 was located in a stockyard southeast of the EAF dust site. A shallow slag sample was collected and very coarse slag was encountered from 5 to 7 feet. Sand and silty sand material was collected at 8 to 9 feet.

3.4 Background Site 4

Background location No. 4 was located in a storage yard adjacent to a stream. The slag sample was obtained at 1 foot and slag extended to 5.5 feet. A replicate slag sample was obtained at this location. The soil material

encountered at 8 feet was visually black and not representative of native soil. Another hole was drilled approximately 15 feet across the railroad track switch to obtain a soil sample at a depth of 8 to 9 feet.

4.0 SHALLOW SLAG SAMPLING

A 60-foot grid system was utilized to establish surface slag sampling locations at the EAF dust storage area. Sample locations were staked in the field. Samples were obtained on April 9 with the drill rig. The slag that was under the EAF dust storage area was covered with wind-deposited nonhazardous dust from adjacent storage areas. At each site, dust was shoveled off the drilling location. The auger was rinsed between each shallow sample. Sampling activities are summarized below.

| <u>Sample No.</u> | <u>Comments</u> |
|-------------------|---|
| G-1 | Slag sampled at 1 foot. |
| G-2 | Slag sampled at 1 foot. |
| G-3 | Slag sampled at 1 foot. |
| G-4 | Slag sampled at 1 foot. |
| G-5 | Slag sampled at 1 foot. |
| G-6 | Reddish granular slag obtained 1 to 1.5 feet. |
| G-7 | Slag sampled at 1 foot. |
| G-8 | Slag sampled at 1 foot (thin layer of slag). |
| G-9 | Slag sampled at 1.5 feet (reddish to gray slag). |
| G-10 | Slag at 1 foot (dark brown to red). |
| G-11 | No slag encountered at 1 foot; encountered black material. Moved hole 1 foot; slag sampled at 1 foot. |
| G-12 | Slag at 1 foot (big chunks). |
| G-13 | Encountered piece of metal. Moved location 1 foot. Encountered sludge-like material. Moved hole 1 foot on line towards middle of building. Encountered sludge-like material. Moved hole 3 feet on line with column. Encountered sludge-like material. Location G-13 abandoned due to absence of shallow slag. |
| G-14 | Slag sampled at 1 foot. |
| G-15 | Hit sludge-like material. Moved hole 1 foot in towards building. Encountered sludge-like material. Moved to center between two columns. Slag sampled at 1 foot. Slag replicate taken at G-15. |
| G-16 | Hit sludge-like material. Moved 10 feet towards center. Slag sampled at 1 foot. |
| G-17 | Loose slag underlain by sludge-like material. Moved 6 feet on column line. Slag sampled at 1 foot. |

5.0 WIPE TESTS

A 20-foot grid system was established at the concrete pad in the drum storage area as indicated on Figure 2. One-foot areas were marked off for lead and PCB wipe tests. Four background locations were set up for lead tests on the entrance ramp to the storage area. Wipe tests were performed on April 9, 1986. The PCB tests were conducted first. A 4-inch square polypropylene cloth wetted with high quality hexane was used to wipe the 1 square foot area in one direction and then rewipe the same area at 90 degree angles to the first wiping. A blank of hexane and a clean polypropylene cloth wetted with hexane were prepared as field blanks.

The lead wipe tests consisted of using 4-inch square polypropylene cloth wetted with 0.1 N sulfuric acid. The wetted cloth was used to wipe the 1-foot square area in one direction and then again at right angles to the first wiping. The used wipe cloth was put in 150 milliliters of 0.1 N sulfuric acid. Sample locations 7A, 7B, 7C, and 7D are background locations for the lead wipe test ranging from 5 to 25 feet from the edge of the building. A clean 4-inch square polypropylene cloth in 150 milliliters of 0.1 N sulfuric acid was prepared as a field blank.

6.0 SAMPLE IDENTIFICATION

All soil and slag samples were delivered to the Burgess & Niple, Limited laboratory on April 10 and 11 under chain of custody control. Sample identification for slag and soil samples is shown in Table 1.

The wipe test samples were delivered on April 10 to Aqualab in Chicago under chain-of-custody control. Sample identification for the wipe tests is shown in Table 2.

Chain-of-custody documentation is included in the back of this report.

Table 1

Soil and Slag Sample Identification
Samples Collected April 7-9, 1986
Chicago Works
LTV Steel

| Field Identification Number | Sample Description | Depth | Blow Counts |
|-----------------------------|---------------------------------|---------------|-------------|
| S-1 | Soil near EAF dust storage site | 24.5' - 26.5' | 10-15-27 |
| S-2 | Soil near EAF dust storage site | 9.0' - 11.0' | 2-2-4-6 |
| S-3 | Soil near EAF dust storage site | 9.0' - 11.0' | 6-10-14-15 |
| S-4 | Soil near EAF dust storage site | 8.0' - 9.0' | 3-5-7-14 |
| S-5 | Soil near EAF dust storage site | 7.0' - 7.5' | 3-9-14-18 |
| S-6 | Soil near EAF dust storage site | 22.0' - 24.0' | 8-18-32 |
| B-1 | Background slag | 1.0' | -- |
| B-1 | Background soil | 8.5' - 10.0' | -- |
| B-2 | Background slag | 1.0' | -- |
| B-2 | Background soil | 5.0' - 6.0' | -- |
| B-2 | Background soil | 6.0' - 7.0' | -- |
| B-3 | Background slag | 1.0' | -- |
| B-3 | Background soil | 8.0' - 9.0' | -- |
| B-4 | Background slag | 1.0' | -- |
| B-4 (rep) | Background slag (replicate) | 1.0' | -- |
| B-4 | Background soil | 8.0' - 9.0' | -- |
| G-1 | Shallow slag | 1.0' | -- |
| G-2 | Shallow slag | 1.0' | -- |
| G-3 | Shallow slag | 1.0' | -- |
| G-4 | Shallow slag | 1.0' | -- |
| G-5 | Shallow slag | 1.0' | -- |
| G-6 | Shallow slag | 1.5' | -- |
| G-7 | Shallow slag | 1.0' | -- |
| G-8 | Shallow slag | 1.0' | -- |
| G-9 | Shallow slag | 1.5' | -- |
| G-10 | Shallow slag | 1.0' | -- |
| G-11 | Shallow slag | 1.0' | -- |
| G-12 | Shallow slag | 1.0' | -- |
| G-14 | Shallow slag | 1.0' | -- |
| G-15 | Shallow slag | 1.0' | -- |
| G-15 (rep) | Shallow slag (replicate) | 1.0' | -- |
| G-16 | Shallow slag | 1.0' | -- |
| G-17 | Shallow slag | 1.0' | -- |

Table 2

Wipe Test Sample Identification
 Samples Collected April 9, 1986
 Chicago Works
 LTV Steel

| <u>Field Identification No.</u> | <u>Sample Description</u> |
|-------------------------------------|---------------------------|
| 1A | Lead wipe test |
| 1B | PCB wipe test |
| 2A | PCB wipe test |
| 2B | Lead wipe test |
| 3A | Lead wipe test |
| 3B | PCB wipe test |
| 4A | PCB wipe test |
| 4B | Lead wipe test |
| 5A | Lead wipe test |
| 5B | PCB wipe test |
| 6A | PCB wipe test |
| 6B | Lead wipe test |
| 7A | Lead background |
| 7B | Lead background |
| 7C | Lead background |
| 7D | Lead background |

7.0 ANALYTICAL RESULTS

7.1 Procedures

Soil and background samples were analyzed for cadmium, hexavalent chromium, and lead on a total constituent basis in accordance with 40 CFR Part 261, Appendix III and SW-846 procedures. Soil and slag samples were also subjected to the Extraction Procedure (EP) toxicity test and the resulting leachates analyzed for cadmium, hexavalent chromium, and lead. EP toxicity tests were performed in accordance with SW-846 procedures.

Wipe tests were performed in accordance to the guidelines of the Illinois EPA as submitted to LTV Steel on January 21, 1986 and attached in the Appendix of this report.

Quality Assurance/Quality Control (QA/QC) data is included in the Appendix.

7.2 Soil and Slag Results

Table 3 compares the results of shallow slag samples (G-1 through G-17) taken in the EAF dust storage area to background slag samples. Lead concentrations in all of the shallow slag samples exceeded background levels. Hexavalent chromium and cadmium were above background in 13 and 15 of the shallow slag samples, respectively. Since the area has historically been used for fill and solid waste disposal since the facility began operation in the early 1900's, it was not unexpected to find underlying materials near steel making operations to exceed background metal concentrations.

Table 4 compares soil samples (S-1 through S-6) near the EAF dust storage area to background soil quality. The six soil samples were within background quality for cadmium and hexavalent chromium. Three of the six soil samples contained lead in excess of background quality. These results are not unexpected given historical use of the area for fill and solid waste disposal.

As stated in LTV Steel's letter of February 4, 1986 to Illinois EPA, all soil and slag samples were subjected to the EP toxicity test and results are shown in Tables 5 and 6. All leachates are significantly below the EP toxicity limits for cadmium and lead and no hexavalent chromium was detected. The slag and soil samples are not EP toxic hazardous wastes. The greatest cadmium concentration (0.290 mg/l) was observed in the leachate from background soil Sample 1. The greatest lead concentration (0.011 mg/l) was observed in the leachate from background slag Sample 4.

To evaluate any potential risk from the area as it now exists, the vertical and horizontal spread (VHS) model is utilized to estimate the ability of an aquifer to dilute the toxicants from a specified quantity of waste and predicts toxicant levels at a receptor well. The predicted toxicant concentrations are then compared to health-based standards for those parameters in an effort to evaluate hazard potential.

The VHS model considers three basic steps:

1. Generation of a leachate from the waste.
2. Migration of the leachate to an underlying aquifer.
3. Migration of the contaminated groundwater in the aquifer to a nearby drinking water well.

EP toxicity test results are used to characterize the leachate from a waste and are multiplied by a VHS model value based on annual waste volume. Since the material being tested is the underlying slag and area soils, the quantity of waste was based on the areal extent of the slag and a depth of 1 foot. Therefore, the waste (slag) estimate of 1,750 cubic yards was utilized as data input to the VHS model.

The VHS model number for 1,750 cubic yards of waste is 0.101063. This number is multiplied by the leachate values to determine the compliance point concentration for comparison to a health based standard. The health-based standards for cadmium, chromium, and lead are the national drinking water standards of 0.01 mg/l, 0.05 mg/l, and 0.05 mg/l, respectively. Since

hexavalent chromium was the constituent of concern and was not detected in any of the EP leachate samples, the VHS model was not applied to hexavalent chromium data.

The compliance point concentrations of the leachates are compared with health-based standards in Table 7 for the slag samples and Table 8 for the soil samples. The VHS computed leachate values from all slag samples taken at the EAF dust storage area are well below the health based standards for cadmium (0.01 mg/l) and lead (0.05 mg/l).

The VHS computed leachate values from all soil samples except Background 1 were well below the health-based standards.

The data presented in Tables 7 and 8 predict that the levels of cadmium and lead in the soils and slag in the vicinity of the EAF dust storage pile will not cause an exceedance of drinking water standards or pose a threat to human health or the environment.

Table 3
Comparison of Shallow Slag Samples
to Background Slag Samples
Chicago Works
LTV Steel

| <u>Sample No.</u> | <u>Cadmium (mg/kg)*</u> | <u>Hexavalent Chromium (mg/kg)*</u> | <u>Lead (mg/kg)*</u> |
|-------------------|-------------------------|---|----------------------|
| G-1 | 3.4 | 0.77 | 460 |
| G-2 | 4.1 | 0.33 | 550 |
| G-3 | 1.5 | 1.24 | 470 |
| G-4 | 2.3 | 1.02 | 390 |
| G-5 | 2.7 | 1.80 | 450 |
| G-6 | 3.4 | 0.97 | 530 |
| G-7 | 5.4 | <0.1 | 640 |
| G-8 | 2.1 | <0.1 | 200 |
| G-9 | 2.5 | 0.34 | 330 |
| G-10 | 1.5 | 1.12 | 260 |
| G-11 | 3.4 | 1.18 | 520 |
| G-12 | 6.9 | 2.25 | 970 |
| G-14 | 2.9 | 0.29 | 440 |
| G-15 | 6.3 | 0.67 | 570 |
| G-15+ | 3.8 | 0.34 | 670 |
| G-16 | 3.8 | 1.52 | 480 |
| G-17 | 5.6 | 1.07 | 780 |
| Background 1 | 1.6 | 0.50 | 45 |
| Background 2 | 1.6 | 0.49 | 160 |
| Background 3 | 1.8 | 0.29 | 33 |
| Background 4 | 1.6 | <0.1 | 32 |
| Background 4+ | 0.69 | <0.1 | 21 |

*All results on a wet weight basis.

+Replicate sample.

Table 4

**Comparison of Soil Samples Near EAF Dust Storage
Site to Background Soil Samples
Chicago Works
LTV Steel**

| <u>Sample No.</u> | <u>Cadmium (mg/kg)*</u> | <u>Hexavalent Chromium (mg/kg)*</u> | <u>Lead (mg/kg)*</u> |
|-------------------|-----------------------------|---|----------------------|
| S-1 | 0.92 | <0.1 | 18 |
| S-2 | 0.96 | <0.1 | 51 |
| S-3 | 0.71 | <0.1 | 10 |
| S-4 | 0.66 | <0.1 | 10 |
| S-5 | 0.74 | <0.1 | 21 |
| S-6 | 0.82 | <0.1 | 6.2 |
| Background 1 | 11 | <0.1 | 1.9 |
| Background 2+ | 1.8 | <0.1 | 15 |
| Background 2++ | 0.70 | <0.1 | 2.9 |
| Background 3 | 0.80 | <0.1 | 2.7 |
| Background 4 | 8.6 | <0.1 | 6.8 |

* All results on a wet weight basis.

+ Sample obtained at 5 to 5.5 feet.

++Sample obtained at 6 to 7 feet.

Table 5
Comparison of EP Toxicity Results on Slag Samples
Chicago Works
LTV Steel

| <u>Sample No.</u> | <u>Cadmium (mg/l)</u> | <u>Hexavalent Chromium (mg/l)</u> | <u>Lead (mg/l)</u> |
|--------------------|-----------------------|-----------------------------------|--------------------|
| G-1 | 0.012 | <0.010 | 0.001 |
| G-2 | 0.012 | <0.010 | 0.001 |
| G-3 | 0.011 | <0.010 | 0.001 |
| G-4 | 0.016 | <0.010 | 0.003 |
| G-5 | 0.015 | <0.010 | 0.001 |
| G-6 | 0.014 | <0.010 | <0.001 |
| G-7 | 0.015 | <0.010 | 0.001 |
| G-8 | 0.015 | <0.010 | <0.001 |
| G-9 | 0.012 | <0.010 | 0.002 |
| G-10 | 0.014 | <0.010 | 0.002 |
| G-11 | 0.016 | <0.010 | <0.001 |
| G-12 | 0.001 | <0.010 | <0.001 |
| G-14 | 0.012 | <0.010 | <0.001 |
| G-15+ | 0.001 | <0.010 | <0.001 |
| G-16 | 0.018 | <0.010 | 0.002 |
| G-17 | <0.001 | <0.010 | <0.001 |
| Background 1 | 0.013 | <0.010 | 0.008 |
| Background 2 | 0.025 | <0.010 | 0.003 |
| Background 3 | 0.013 | <0.010 | 0.004 |
| Background 4 | 0.012 | <0.010 | 0.011 |
| EP Toxicity Limits | 1.0 | 5.0* | 5.0 |

+Replicate sample.

*Limit for total chromium.

Table 6
Comparison of EP Toxicity Results on Soil Samples
Chicago Works
LTV Steel

| <u>Sample No.</u> | <u>Cadmium (mg/l)</u> | <u>Hexavalent Chromium (mg/l)</u> | <u>Lead (mg/l)</u> |
|-------------------|---------------------------|---|--------------------|
| S-1 | 0.006 | <0.010 | 0.009 |
| S-2 | <0.005 | <0.010 | 0.003 |
| S-3 | <0.005 | <0.010 | 0.007 |
| S-4 | <0.005 | <0.010 | 0.002 |
| S-5 | <0.005 | <0.010 | 0.010 |
| S-6 | <0.005 | <0.010 | 0.003 |
| Background 1 | 0.290 | <0.010 | 0.002 |
| Background 2+ | <0.005 | <0.010 | 0.003 |
| Background 2* | <0.005 | <0.010 | 0.002 |
| Background 3 | 0.010 | <0.010 | 0.001 |
| Background 4 | 0.013 | <0.010 | 0.003 |
| EP Toxicity Limit | 1.0 | 5.0++ | 5.0 |

+Sample obtained at 5 to 5.5 feet.

*Sample obtained at 6 to 7 feet.

++Limit for total chromium.

Table 7
VHS Model Values for Slag Samples
Chicago Works
LTV Steel

| <u>Sample No.</u> | <u>Cadmium (mg/l)</u> | <u>Lead (mg/l)</u> |
|------------------------|-----------------------|--------------------|
| G-1 | 0.0012 | 0.0001 |
| G-2 | 0.0012 | 0.0001 |
| G-3 | 0.0011 | 0.0001 |
| G-4 | 0.0016 | 0.0003 |
| G-5 | 0.0015 | 0.0001 |
| G-6 | 0.0014 | <0.0001 |
| G-7 | 0.0015 | 0.0001 |
| G-8 | 0.0015 | <0.0001 |
| G-9 | 0.0012 | 0.0002 |
| G-10 | 0.0014 | 0.0002 |
| G-11 | 0.0016 | <0.0001 |
| G-12 | 0.0001 | <0.0001 |
| G-14 | 0.0012 | <0.0001 |
| G-15+ | 0.0001 | <0.0001 |
| G-16 | 0.0018 | 0.0002 |
| G-17 | <0.0001 | <0.0001 |
| Background 1 | 0.0013 | 0.0008 |
| Background 2 | 0.0025 | 0.0003 |
| Background 3 | 0.0013 | 0.0004 |
| Background 4 | 0.0012 | 0.0011 |
| Health Based Standards | 0.01 | 0.05 |

+Replicate sample.

Table 8

**VHS Model Values for Soil Samples
Chicago Works
LTV Steel**

| <u>Sample No.</u> | <u>Cadmium (mg/l)</u> | <u>Lead (mg/l)</u> |
|-----------------------|---------------------------|--------------------|
| S-1 | 0.0006 | 0.0009 |
| S-2 | <0.0005 | 0.0003 |
| S-3 | <0.0005 | 0.0007 |
| S-4 | <0.0005 | 0.0002 |
| S-5 | <0.0005 | 0.0010 |
| S-6 | <0.0005 | 0.0003 |
| Background 1 | 0.0293 | 0.0002 |
| Background 2+ | <0.0005 | 0.0003 |
| Background 2* | <0.0005 | 0.0002 |
| Background 3 | 0.0010 | 0.0001 |
| Background 4 | 0.0013 | 0.0003 |
| Health-based Standard | 0.01 | 0.05 |

+Sample obtained at 5 to 5.5 feet.

*Sample obtained at 6 to 7 feet.

7.3 Wipe Tests

The analytical results of the lead and PCB wipe tests are shown in Table 7. The background concentrations for lead (Samples 7A, 7B, 7C, and 7D) ranged from 0.0042 to 0.0380 milligrams per square foot (mg/sf). Lead wipe tests taken inside the drum storage area ranged from 0.0041 to 0.0129 mg/sf. The results indicate that the concrete surface in the drum storage area is within background quality for lead.

The results of the PCB wipe tests as shown in Table 7 ranged from 0.131 mg/sf to 0.660 mg/sf. PCBs were not detected in the field blank or the hexane used as the solvent.

PCB disposal is not regulated under RCRA. The PCB storage and disposal regulations contained in 40 CFR Part 761 apply to PCB concentrations of 50 ppm and above. In order to compare the results in Table 7 with this standard, it was assumed that the hexane penetrated 0.01 inch of the concrete surface of the square foot wipe test area. Assuming that concrete weighs 150 pounds per cubic foot, then 0.125 pounds (0.0567 kg) of concrete was subjected to the wipe test for PCBs. The results of the PCB wipe tests as converted to a weight to weight (ppm) basis are shown below.

| <u>Sample No.</u> | <u>mg/sf</u> | <u>mg/kg</u> |
|-------------------|--------------|--------------|
| 1B | 0.186 | 3.28 |
| 2A | 0.131 | 2.31 |
| 3B | 0.191 | 3.37 |
| 4A | 0.660 | 11.64 |
| 5B | 0.340 | 6.00 |
| 6A | 0.450 | 7.94 |

The above results indicate that the concrete pad is decontaminated to below the PCB criteria of 50 mg/kg (ppm) as set forth in 40 CFR Part 761.

Table 9

Wipe Test Analysis
Chicago Works
LTV Steel

| <u>Lead Wipe Tests Sample No.</u> | <u>Concentration in mg/sf⁽¹⁾</u> |
|-----------------------------------|---|
| 1A | 0.0041 |
| 2B | 0.0129 |
| 3A | 0.0046 |
| 4B | 0.0086 |
| 5A | 0.0101 |
| 6B | 0.0124 |
| 7A | 0.0380 |
| 7B | 0.0120 |
| 7C | 0.0042 |
| 7D | 0.0123 |
| Field Blank (mg/l) | 0.00001 |
| <u>PCB Wipe Tests Sample No.</u> | <u>Concentration in mg/sf⁽¹⁾</u> |
| 1B | 0.186 |
| 2A | 0.131 |
| 3B | 0.191 |
| 4A | 0.660 |
| 5B | 0.340 |
| 6A | 0.450 |
| Wipe Blank (mg/wipe cloth) | <0.001 |
| Hexane Blank (mg/l) | <0.001 |

(1)mg/sf = milligrams per square foot.

8.0 CLOSURE STATEMENT AND CERTIFICATION

**LTV STEEL COMPANY, INC.
CHICAGO WORKS BAR DIVISION
EAF DUST STORAGE AREA
CLOSURE CERTIFICATION STATEMENT**

Burgess & Niple, Limited, Engineers and Architects (B&NL), at the request of LTV Steel, the Chicago Works Bar Division, has reviewed the "Modified Closure Plan for the Berm and Tarped EAF Dust Storage Pile" which was approved by Illinois EPA in their letter dated July 14, 1983. B&NL has prepared two addendums to said closure plan, dated June 1985 and November 1985, hereinafter referred to as "Closure Plan." Illinois EPA approved the Closure Plan with modifications on January 21 and February 6, 1985. LTV Steel's letter of February 4, 1986 to Illinois EPA represents further understanding of the closure plan approval.

The EAF dust storage site was visited by B&NL personnel on March 25, May 22, August 5, September 12, October 9, 1985 and April 7 to 10, 1986 to confirm the closure in accordance to the Closure Plan. On the day of the site visit of September 12, 1985, visual inspection indicated that the EAF dust had been removed down to the underlying material. On the day of the site visit of October 9, 1985, visual observations indicated that 4 inches of slag underlying the EAF dust storage area had been removed.

These observations were substantiated by LTV Steel's "Waste Tracking System - Chicago Waste Generation Report" records of hazardous waste material hauled from the site for disposal. On March 25, 1985, B&NL estimated that 8,000 tons of EAF dust remained at the site. Records indicated that from April through September, a total of 8,586 tons of material had been removed. Of this total, 698 tons had been removed after the September 12, 1985 site visit. The Closure Plan indicates that 500 tons is equivalent to 4 inches of underlying material at the site. Since visual observations on the site visit of September 12, 1985 indicated that removal had progressed to the underlying material and since an additional 698 tons were removed after that visit, it is reasonable to conclude that all of the EAF dust and 4 inches of underlying material have been removed as required by the Closure Plan.

Samples of soil and slag were collected in accordance with the January 21, 1986 comments from the Illinois EPA. Sampling and analytical procedures are documented in the accompanying report entitled "Closure Activities - EAF Dust and Drum Storage Areas" (July 1986). All samples were in compliance with EP toxic limits for cadmium and lead and no hexavalent chromium was detected in the leachates. EP toxicity testing confirmed that no hazardous waste remained on site.

As specified in 40 CFR Part 265, Subpart G of RCRA 1976, Burgess & Niple, Limited verifies that the EAF dust storage area has been closed in conformity and accordance with the prepared Closure Plan and with the conclusions and analytical results contained in the "Report on Closure Activities."

Thomas D. Ashton
Thomas D. Ashton, P.E.
Ohio No. E43114

Robert Mahan
Robert Mahan, P.E.
Illinois No. 062-025089

Date July 16, 1986

**LTV STEEL COMPANY, INC.
CHICAGO WORKS BAR DIVISION
DRUM STORAGE AREA CLOSURE
CERTIFICATION STATEMENT**

Burgess & Niple, Limited (B&NL), Engineers and Architects, at the request of LTV Steel, the Chicago Works Bar Division, prepared a closure plan in June 1985 and subsequent addendum dated November 21, 1985 to close the drum storage area, hereinafter referred to as the Closure Plan. Illinois EPA approved the closure plan with modifications on January 21 and February 6, 1986. LTV Steel's letter of February 4, 1986 to Illinois EPA represents further understanding of the closure plan approval.

The concrete pad was tested in accordance with the approved closure plan on April 9, 1986 and found to be within background quality for lead and below the limits of PCB regulation as set forth in 40 CFR 761.

The structural integrity of the storage pad is good, although the concrete floor of the storage area is cracked. Generally, the cracks radiate from the columns towards other columns or at a 45 degree angle from the column lines. The cracks appear to be shrinkage cracks. The floor has a moderate amount of surface spalling, but the concrete remaining is generally hard. The upper level of the cracks is also spalled where they pass through spalled areas. Probing with a small metallic object indicated that at the lower levels of the cracks, the concrete was tight and hard. It is not expected that the cracks are watertight; however, it is believed that a significant hydrostatic head would have to be present before much flow would occur. The construction joints at the wall perimeters and column bases were generally tight and in good condition.

As specified in 40 CFR Part 265, Subpart G of RCRA 1976 and 40 CFR Part 761, Burgess & Niple, Limited verifies that the drum storage area has been closed in conformity and accordance with the prepared Closure Plan and with the conclusions and analytical results contained in the "Report on Closure Activities."

Thomas D Ashton
Thomas D. Ashton, P.E.
Ohio No. E43114

Robert Mahan
Robert Mahan, P.E.
Illinois No. 062-025089

Date July 16, 1986

APPENDIX

**BURGESS & NIPLE, LIMITED
CHAIN OF CUSTODY RECORD**

| PROJ. NO. | | PROJECT NAME | | | | NO. OF CON- TAINERS | REMARKS | | | | | | | | | | |
|-----------------------|----------|--------------|-------|-------|-----------------------|------------------------------|---------|--|--|--|--|--|--|--|--|--|--------------|
| SAMPLERS: (Signature) | | | | | | | | | | | | | | | | | |
| STA. NO. | DATE | TIME | COMP. | GRAB. | STATION LOCATION | | | | | | | | | | | | |
| G-1 | Apr 9 86 | 3:00 | | ✓ | Underway at abandoned | 1 | 1 | | | | | | | | | | slag sample. |
| G-2 | " | 3:10 | | ✓ | " OCAF dust pile | 1 | 1 | | | | | | | | | | " |
| G-3 | " | 3:15 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-4 | " | 3:20 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-5 | " | 4:15 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-6 | " | 4:20 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-7 | " | 4:32 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-8 | " | 3:25 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-9 | " | 3:35 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-10 | " | 3:47 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-11 | " | 4:05 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-12 | " | 4:10 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-14 | " | 3:45 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-17 | " | 4:45 | | ✓ | " | 1 | 1 | | | | | | | | | | " |
| G-16 | " | 5:30 | | ✓ | " | 1 | 1 | | | | | | | | | | " |

| | | | | | |
|------------------------------|-------------|---|------------------------------|-----------|--------------------------|
| Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature) |
| <i>[Signature]</i> | Apr 9 10:25 | <i>[Signature]</i> | | | |
| Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature) |
| <i>[Signature]</i> | | UPS | | | |
| Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) | Date/Time | Remarks: | |
| | | <i>[Signature]</i> | 4-11-86 11:30 AM | | |

| PROJ. NO. | | | | | | PROJECT NAME | | | | | | | | | | | |
|----------------------------------|--------|------|-------------|---|-------------------------------------|------------------------|------------------------------|------------------------------|----------|-------------------------|--------------------------|--|--|--|--|--|--|
| 3742 | | | | | | IV Steel Chicago Works | | | | | | | | | | | |
| SAMPLERS: | | | | | | | | (Signature) | | | | | | | | | |
| (Signature) | | | | | | | | | | | | | | | | | |
| STA. NO. | DATE | TIME | COMP. | GRAB. | STATION LOCATION | | | NO. OF CON- TAINERS | | REMARKS | | | | | | | |
| G-15 | Apr 86 | 5:10 | | ✓ | Underway at abandoned EAF dust pile | | | 1 | | slag sample | | | | | | | |
| G15A | Apr 86 | 5:10 | | ✓ | " | | | 1 | | field replicate - slag | | | | | | | |
| [Crossed out section] | | | | | | | | | | | | | | | | | |
| BS-1 | Apr 86 | | | ✓ | slag off site | | | 1 | | slag | | | | | | | |
| BS-2 | " | | | ✓ | slag off site | | | 1 | | slag | | | | | | | |
| BS-2 | " | | | ✓ | soil off site | | | 1 | | soil 6'-7' | | | | | | | |
| BS-3 | " | | | ✓ | slag off site | | | 1 | | slag | | | | | | | |
| BS-3 | " | | | ✓ | soil off site | | | 1 | | soil | | | | | | | |
| BS-4 | " | | | ✓ | slag off site | | | 1 | | slag | | | | | | | |
| BS-4 | " | | | ✓ | soil off site | | | 1 | | soil | | | | | | | |
| BS-4A | " | | | ✓ | slag off side | | | 1 | | slag rep @ background 4 | | | | | | | |
| BS-2 | " | | | ✓ | soil off site | | | 1 | | soil : 5-5.5' | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Relinquished by: (Signature) | | | Date/Time | Received by: (Signature) | | | Relinquished by: (Signature) | | | Date/Time | Received by: (Signature) | | | | | | |
| (Signature) | | | Apr 9 10:45 | (Signature) [initials] | | | (Signature) | | | | (Signature) | | | | | | |
| Relinquished by: (Signature) | | | Date/Time | Received by: (Signature) | | | Relinquished by: (Signature) | | | Date/Time | Received by: (Signature) | | | | | | |
| (Signature) | | | | (Signature) UPS | | | (Signature) | | | | (Signature) | | | | | | |
| Relinquished by: (Signature) | | | Date/Time | Received for Laboratory by: (Signature) | | | Date/Time | | Remarks: | | | | | | | | |
| (Signature) | | | | (Signature) | | | 4-11-86 11:30 AM | | | | | | | | | | |



BURGESS & NIPLE, LIMITED
CHAIN OF CUSTODY RECORD

| PROJ. NO. | | PROJECT NAME EAF DUST LTV - Chicago Bar Works | | | | NO. OF CON- TAINERS | | | | | | | | | | | REMARKS |
|--|--------|--|-------|-------|----------------------|------------------------------|---|---|---|---|---|--|---|---------------------|-----------------------------|--------------------------|---------|
| SAMPLERS: (Signature) Thomas D. Ashton | | | | | | | | | | | | | | | | | |
| STA. NO. | DATE | TIME | COMP. | GRAB. | STATION LOCATION | | | | | | | | | | | | |
| S-2 | 4/7/66 | | | | North of bldg | 1 | ✓ | | | | | | | | Soil beneath Slag near site | | |
| S-3 | 4/7/66 | | | | East of bldg | 1 | ✓ | | | | | | | | Soil beneath Slag near site | | |
| S-4 | 4/6/66 | | | | East & South of bldg | 1 | ✓ | | | | | | | | Soil beneath Slag near site | | |
| S-5 | 4/6/66 | | | | South of pile | 1 | ✓ | | | | | | | | " " " " " | | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | Jar broken in transit * | | |
| S-6 | 4/6/66 | | | | West of pile | 1 | ✓ | | | | | | | | Soil beneath Pile & Slag - | | |
| S-1 | 4/6/66 | | | | West of bldg | 1 | ✓ | | | | | | | | Soil beneath Pile & Slag - | | |
| 1 | 4/4/66 | | | | Products Yard | 1 | ✓ | | | | | | | | Background Soil | | |
| Relinquished by: (Signature) Thomas D. Ashton | | | | | | Date/Time 10 April 66 | | Received by: (Signature) Paul Ham | | | | Relinquished by: (Signature) for Laboratory | | Date/Time | | Received by: (Signature) | |
| Relinquished by: (Signature) | | | | | | Date/Time | | Received by: (Signature) | | | | Relinquished by: (Signature) | | Date/Time | | Received by: (Signature) | |
| Relinquished by: (Signature) | | | | | | Date/Time | | Received for Laboratory by: (Signature) | | | | Date/Time | | Remarks: | | | |
| | | | | | | | | | | | | | | Method of shipment: | | | |

* I asked BEN Labs to repack.

aqualab inc.



☐ 9909 Burnet Rd.
Austin TX 78758
512-835-4980

☐ 850 West Bartlett Rd.
Bartlett IL 60103
312-289-3100

☒ 434 South Wabash Av.
Chicago IL 60605
312-427-6490

☐ 3548 35th St.
Rockford IL 61109
815-874-2171

CHAIN OF CUSTODY RECORD

| Client <u>Burgess & Niple, Ltd.</u> <u>5085 Reed Rd. Columbus OH 43081</u> | | | | Project # <u>3742</u> | | | (Wipe tests) | |
|---|-------------------------------------|--------|----------|-----------------------|------|----------------|---|--|
| Sampler(s) <u>Janet Barker-Stonerook</u> | | | | | | | | |
| Number | Sampling Location | Date | Time | Composite | Grab | No. of Bottles | Remarks | |
| 1A | Concrete storage pad | 9-4-86 | 9:15 am | | ✓ | 1 | Pb wipe test; 4 in ² cloth * | |
| 1B | " | 9-4-86 | 9:30 am | | ✓ | 1 | PCB wipe test; 4 in ² cloth | |
| 2A | " | 9-4-86 | 9:38 am | | ✓ | 1 | PCB wipe test; 4 in ² cloth | |
| 2B | " | 9-4-86 | 10:20 am | | ✓ | 1 | Pb wipe test; 4 in ² cloth * | |
| 3A | " | 9-4-86 | 10:25 am | | ✓ | 1 | Pb wipe test; 4 in ² cloth * | |
| 3B | " | 9-4-86 | 9:35 am | | ✓ | 1 | PCB wipe test; 4 in ² cloth | |
| 4A | " | 9-4-86 | 9:45 am | | ✓ | 1 | PCB wipe test; 4 in ² cloth | |
| 4B | " | 9-4-86 | 10:30 am | | ✓ | 1 | Pb wipe test; 4 in ² cloth * | |
| 5A | " | 9-4-86 | 10:35 am | | ✓ | 1 | Pb wipe test; 4 in ² cloth * | |
| 5B | " | 9-4-86 | 9:40 am | | ✓ | 1 | PCB wipe test; 4 in ² cloth | |
| 6A | " | 9-4-86 | 9:48 am | | ✓ | 1 | PCB wipe test; 4 in ² cloth | |
| 6B | " | 9-4-86 | 10:40 am | | ✓ | 1 | Pb wipe test; 4 in ² cloth * | |
| PCB wipe blank | Field blank at concrete storage pad | 9-4-86 | 9:30 am | | ✓ | 1 | 4 in ² cloth soaked/wetted in hexane - field blank | |
| Hexane blank | Field blank at concrete storage pad | 9-4-86 | | | ✓ | 1 | blank of hexane used | |
| * Pb wipe tests in 150 ml 0.1N H ₂ SO ₄ | | | | | | | | |

| | | | |
|--|--|--------------------------|----------------------|
| Relinquished By <u>Janet Barker-Stonerook</u> | Received By <u>Robert A. Bucaro</u> | Date <u>10 Apr 86</u> | Time <u>11:30</u> |
| | | | |
| | | | |
| Shipping Notes | Received For Aqualab By | | |

aqualab inc.



☐ 9909 Burnet Rd.
Austin TX 78758
512-835-4980

☐ 850 West Bartlett Rd.
Bartlett IL 60103
312-289-3100

☒ 434 South Wabash Av.
Chicago IL 60605
312-427-6490

☐ 3548 35th St.
Rockford IL 61109
815-874-2171

CHAIN OF CUSTODY RECORD

| Client <i>Burgess & Niple Ltd.</i> <i>5085 Reed Rd. Columbus OH 43081</i> | | | | Project # <i>3942</i> <i>(wipe tests)</i> | | | |
|--|-----------------------------|------------------|-----------------|---|----------|----------------|---|
| Sampler(s) <i>Janet Barker-Stonrock</i> | | | | | | | |
| Number | Sampling Location | Date | Time | Composite | Grab | No. of Bottles | Remarks |
| 7A | <i>Ramp to storage area</i> | <i>Apr 9, 86</i> | <i>10:55 am</i> | | <i>X</i> | <i>1</i> | <i>Pb wipe test; 4in² cloth</i> * |
| 7B | <i>"</i> | <i>4-9-86</i> | <i>11:00 am</i> | | <i>X</i> | <i>1</i> | <i>Pb wipe test; 4in² cloth</i> + |
| 7C | <i>"</i> | <i>4-9-86</i> | <i>11:05 am</i> | | <i>X</i> | <i>1</i> | <i>Pb wipe test; 4in² cloth</i> * |
| 7D | <i>"</i> | <i>4-9-86</i> | <i>11:10 am</i> | | <i>X</i> | <i>1</i> | <i>Pb wipe test; 4in² cloth</i> * |
| <i>Field Blank</i> | <i>Pb wipe test blank</i> | <i>4-9-86</i> | <i>11:18</i> | | <i>X</i> | <i>1</i> | <i>4in² cloth in 150 ml 0.1N H₂SO₄</i> |
| <i>* Pb wipe tests in 150 ml 0.1N H₂SO₄</i> | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | | | |
|---|--|--------------------------|----------------------|
| Relinquished By <i>Janet Barker-Stonrock</i> | Received By <i>Robert N. Bucaro</i> | Date <i>10 Apr 86</i> | Time <i>11:30</i> |
| | | | |
| | | | |
| Shipping Notes | Received For Aqualab By | | |



WIPE TEST PROCEDURE FOR LEAD

1. Wipe test samples shall be taken at intervals of twenty feet throughout the container storage area.
2. The wipe tests shall be conducted in the following manner:
 - a. Wet a polypropylene cloth filter with a weak sulfuric acid solution (0.1 N).
 - b. Wipe a marked-off one square foot area in strips until the entire area has been wiped.
 - c. Wipe the area a second time as described above, but in a direction at right angles to that which the area was initially wiped.
3. Once the wipe test is completed, the cloth filter shall be placed in a large glass container, completely immersed in a known volume of a weak sulfuric acid solution (0.1 N) and capped. To determine the level of lead which was removed during the wipe test, the following procedure shall be followed:
 - a. Keep the cloth filter immersed in the weak acid solution and agitate gently for 24 hours. The liquid which is in the glass container shall be analyzed for total lead. Calculations shall then be made to determine the surface concentrations of lead present in the area where the wipe tests were conducted (mg/sq. ft.).
 - b. A field blank and three external spikes containing a known amount of lead (1 mg, 10 mg and 100 mg) shall also be submitted for analysis. The analysis of these samples is necessary to indicate whether the physical and chemical properties of the polypropylene have any effect on the analytical results for the samples.
4. As an alternative to using a polypropylene cloth, a lint-free cotton cloth or filter paper may be used in conducting the wipe tests. If this alternative is chosen, the cloth or paper shall be placed in a glass container after the sample is taken, and sealed with an appropriate cap. The cloth shall be analyzed to determine the total amount of lead removed during the test (mg/sq. ft.) using the procedures set forth in SW-846. A field blank of a wetted cloth shall also be submitted for analysis to determine if the cloth has any effect on the analysis for lead.



WIPE TEST FOR PCBs

1. Samples shall be taken at intervals of twenty feet throughout the container storage area.
2. The wipe tests shall be conducted in the following manner:
 - a. Wet a polypropylene cloth filter or a lint-free cotton cloth with high purity hexane.
 - b. Wipe a marked-off one square foot area in strips until the entire area has been wiped.
 - c. Wipe the area a second time as described above, but in a direction at right angles to that which the area was initially wiped.
3. When the wipe test is complete, seal the cloth or filter in a clean glass bottle.
4. Ship the sample bottles to the laboratory for analysis.

BC:ct/151F,12-13

Burgess & Niple, Limited

Engineers and Architects

5085 Reed Road • Columbus, OH 43220 • (614) 459-2050

LTV CHICAGO

QUALITY ASSURANCE DAILY REPORT

Date June 5, 1986

Accuracy Chart

| Parameter | Actual or True Value | Analytical Results in Duplicate | | Analyst | Range | Average | Lower | Upper |
|-----------|----------------------|---------------------------------|------|---------|-------|---------|----------------|----------------|
| | | | | | | | Control Limits | Control Limits |
| Lead | 45 ug/l | 48.9 | 49.0 | JP | 0.1 | 49.0 | 37 | 53 |
| Cadmium | 39 ug/l | 39.0 | 38.9 | JP | 0.1 | 39.0 | 31 | 42.8 |

Spiked Concentration Read

Sample Number

Percent Recovery

| | | | | | |
|---------------|-----------|------|----|------|------|
| Lead | 43 ug/l | 35 | JP | 2116 | 82 |
| | 60 ug/l | 61 | JP | 2136 | 102 |
| | 72 ug/l | 65 | JP | 2137 | 90.3 |
| Cadmium | 111 ug/l | 110 | JP | 2116 | 99 |
| | 140 ug/l | 159 | JP | 2136 | 114 |
| | 153 ug/l | 167 | JP | 2137 | 109 |
| Chromium, Hex | 25.0 ug/l | 26.0 | BC | 2116 | 104 |

Duplicate Samples

| Sample Number | Lead | | Cadmium | |
|---------------|-----------|-----------|------------|------------|
| | Run #1 | Run #2 | Run #1 | Run #2 |
| 2109 | 51 mg/kg | 52 mg/kg | 0.96 mg/kg | 0.98 mg/kg |
| 2118 | 2.7 mg/kg | 3.0 mg/kg | 0.80 mg/kg | 0.76 mg/kg |
| 2127 | 260 mg/kg | 280 mg/kg | 1.5 mg/kg | 1.5 mg/kg |
| 2134 | 460 mg/kg | 610 mg/kg | 3.4 mg/kg | 3.3 mg/kg |
| 2138 | 550 mg/kg | 530 mg/kg | 4.1 mg/kg | 4.2 mg/kg |

Burgess & Niple, Limited

Engineers and Architects

5085 Reed Road • Columbus, OH 43220 • (614) 459-2050

QUALITY ASSURANCE DAILY REPORT

Date July 10, 1986

LTV-CHICAGO

| Parameter | Actual or True Value | Analytical Results in Duplicate | | Analyst | Range | Average | Accuracy Chart | |
|-----------|-------------------------|------------------------------------|------|---------|-------|---------|-------------------------|-------------------------|
| | | | | | | | Lower Control Limits | Upper Control Limits |
| Lead | 45 ug/l | 47.1 | 46.9 | JP | 0.2 | 47.0 | 37 | 53 |
| Cadmium | 39 ug/l | 36.8 | 37.2 | JP | 0.4 | 37.0 | 31 | 42.8 |

| | | <u>Spiked Concentration</u> | | <u>Sample Number</u> | <u>Percent Recovery</u> |
|---------------|-----------|-----------------------------|----|----------------------|-------------------------|
| | | <u>Read</u> | | | |
| Chromium, Hex | 25.0 ug/l | 24 | BC | 3598 | 92 |

aqualab inc.

850 West Bartlett Rd.
Bartlett IL 60103
312-289-3100



ANALYTICAL REPORT

Ms. Janet Barker-Stonerook
BURGESS & NIPLE
5085 Reed Rd.
Columbus OH 43220

30 April 1986
Sample No. 17825 Spk. & Dup.

Date Received: 04-10-86

| <u>Sample Description</u> | <u>Lead</u> ug/wipe | |
|----------------------------|------------------------|----------|
| Duplicate Sample 1-A | 4.6 | *RPD=11 |
| Spike Sample 1-A (1 ppm) | 5.2 | **%R=89% |
| Spike Sample 1-A (10 ppm) | 12.6 | %R=82 |
| Spike Sample 1-A (100 ppm) | 93.4 | %R=89% |

* RPD = Relative Percent Difference
**%R = Percent Recovery

William H. Mottashed
William H. Mottashed

